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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,451	08/21/2003	Joseph L. Bryant	4115-150 CIP DIV	7909
23448 7590 01/30/2009 INTELLECTUAL PROPERTY / TECHNOLOGY LAW PO BOX 14329 RESEARCH TRIANGLE PARK, NC 27709				
EXAMINER				
NOBLE, MARCIA STEPHENS				
ART UNIT		PAPER NUMBER		
1632				
MAIL DATE		DELIVERY MODE		
01/30/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/645,451

Applicant(s)

BRYANT ET AL.

Examiner

MARCIA S. NOBLE

Art Unit

1632

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 4 and 6-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4, 6-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. Claims 1, 3, 4, and 6-10 are pending. Claim 3 is amended and claims 2, 5, and 11 are canceled by Applicant's amendment, filed 11/20/2008.

Election/Restrictions

2. Claims 12-21 were previously withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected subject matter, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 4/7/2006.

Claims 1, 3, 4, and 6-10 are under consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Enablement

3. The rejection of claims 1, 3, 4, 6-10, as amended and previously presented, under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement, as set forth in the Office Action mailed 8/20/2008 on pages 3-6, is withdrawn.

To reiterate, the grounds of the enablement rejection encompassed a lack of enabled use for the claimed hCD4 transgenic rat because the specification disclosed the intended use of the claimed rat as a model for HIV disease. Since hCD4 transgenic rats do not develop HIV, the CD4 transgenic rat was deemed to lack an enabled use.

Applicant traverses this rejection on the grounds that the specification also discloses that the hCD4 transgenic rats were used to make double transgenic rats and that this disclosure is an enabled use for the hCD4 transgenic rat. Applicant also submitted a declaration.

The declaration under 37 CFR 1.132 filed 11/20/2008 and again on 12/4/2008 is sufficient to overcome the rejection of claims 1, 3, 4, 6-10 based upon 35 U.S.C. 112, first paragraph.

The declaration by Joseph L. Bryant states the hCD4 transgenic rats of the claims were used to make double transgenic rats comprising the hCD4 transgene and an HIV-1 transgene, which are the subject of the claims present in US 6, 660, 904 (items # 8 and 9 on pages 2-3 of the declaration).

This statement by the declaration in conjunction with Applicant's argument asserting that the production of a single hCD4 transgenic mouse to further make double transgene rats would be considered an enabled intended use disclosed by the specification. Therefore, Applicant's arguments and the declaration are found persuasive to overcome the enablement rejection.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browning et al (PNAS 94:14637-14641, 1997; of record), in further view of Bennett (US 5,625,125 patent date:4/29/1997).

The instant claims are drawn to a transgenic rat whose genome comprises a transgene encoding at least a portion of a human CD4 capable of binding to gp120, operably linked to a PBMC specific promoter capable of directing expression of the human CD4 on PBMCs of the transgenic rat, wherein the PBMC of the transgenic rat express the human CD4.

Browning et al teaches a method of producing a transgenic mouse comprising a transgene encoding a human CD4 operably linked to a PBMC specific promoter (p. 14638, col 2, lines 5-14). Browning teaches the development of an expression construct comprising the coding sequence for human CD4 operably linked to the PBMC specific lck promoter. Browning further teaches the injection of the expression construct into the pronuclei of mice embryos (p. 14637, col 2, line 1 under 'Construction of Transgene' section to p. 14638, col 1, 8 and p.14638, col 2, lines 7-10). Browning et al teaches that the transgenic mice, produced by their method, express human CD4 on the surface of PBMCs (p. 14638, col 2, lines 14-17). These disclosures teach a

transgenic mouse comprising and expressing a human CD4 on PBMC, as claimed.

These disclosures also teach that the human CD4 expressed by the transgenic mouse is capable of binding gp120 because the transgene encodes for the full coding sequence of the human CD4, which has the ability to bind gp120 (p. 14637, col 1, line 7). Browning et al does not teach a transgenic rat.

However, at the time of the invention, methods of making transgenic rats that successfully express a transgene product was well established in the art, as exemplified by the teachings of Bennett (col 9, line 150 to col 11, line 11 and Figure 1).

The combination of prior art cited above in all rejections under 35 U.S.C. 103 satisfies the factual inquiries as set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Once this has been accomplished the holdings in KSR can be applied (*KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007): "Exemplary rationales that may support a conclusion of obviousness include: (A) Combining prior art elements according to known methods to yield predictable results; (B) Simple substitution of one known element for another to obtain predictable results; (C) Use of known technique to improve similar devices (methods, or products) in the same way; (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (E) "Obvious to try" - choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art; (G) Some

teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention."

In the present situation, rationales A, B, and E are applicable. At the time the invention was made, it would have been obvious to an artisan of ordinary skill to predictably combine the prior art teachings of Browning et al and Bennett to produce a transgenic rat comprising a transgene encoding the human CD4 gene operably linked to the Ick promoter to direct transgene express human CD4 on PBMCs. Since the claims only require a phenotype of expression of the human CD4 transgene product, an artisan would have a reasonable expectation of success producing a transgenic rat that expresses human CD4 on PBMC from the teachings of Browning et al and Bennett et al because the prior art demonstrates predictable expression of a transgene product by transgenic rat, as exemplified by Bennett.

Further, if the transgenic rat as claimed is rendered obvious by the prior art, its parts, such a cell, a germ cell, a somatic cell, and an egg as claimed in claims 6-10, are also rendered obvious by the teachings of the art because the art teaches the production of the transgenic rat as a whole.

Thus, the teachings of the cited prior art in the obviousness rejection above provide the requisite teachings and motivations with a clear, reasonable expectation. The cited prior art meets the criteria set forth in both Graham and KSR.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARCIA S. NOBLE whose telephone number is (571)272-5545. The examiner can normally be reached on M-F 9 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras can be reached on (571) 272-4517. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marcia S. Noble

/Peter Paras, Jr./
Supervisory Patent Examiner, Art Unit 1632